

Heavy Rain Forecasting

➤ Defined:

- ✓ 2 inches or more in 12 hours (DLT 4 Hours)
- ✓ 5 inches or more in 24 hours (DLT 4 hours)

Heavy Rain Forecasting

➤ **Heavy Rain Events include:**

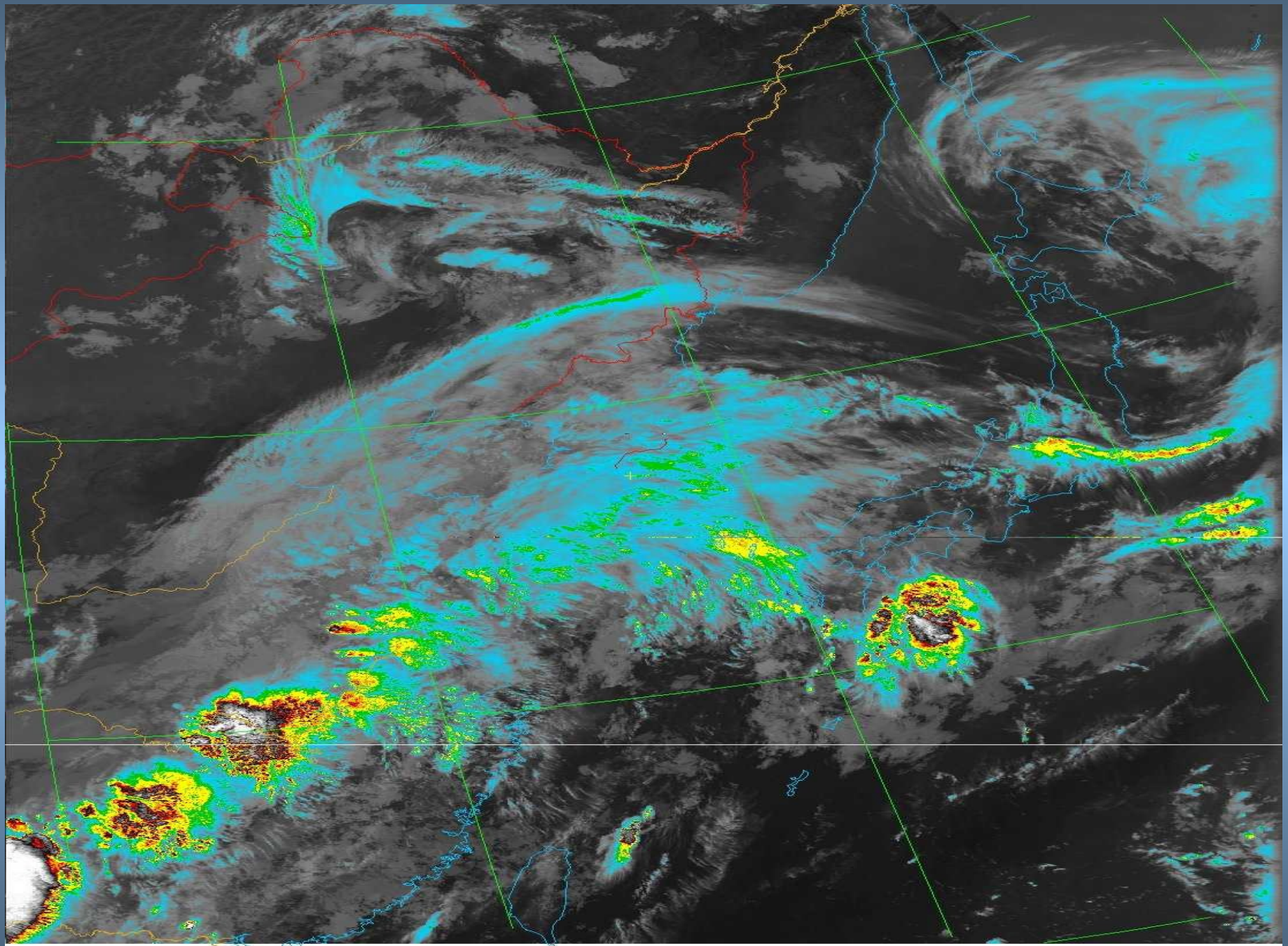
- ✓ Train Effect Thunderstorms
- ✓ Slow Moving Thunderstorms
- ✓ MCC/MCS
- ✓ Tropical Cyclones

Train Effect Thundersorms

- Also known as “Training”
 - ✓ This event occurs when thunderstorms move quickly, but keep passing over the same area.
 - ✓ Common with active frontal systems during transition seasons

Slow Moving Thunderstorms

- Results when thunderstorms stall or move very slowly – causing heavy rainfall over a relatively small area.
- Flash flooding is common with this phenomena in Korea.
 - ✓ Mountainous terrain w/drainage into river valleys
- Common during the Changma



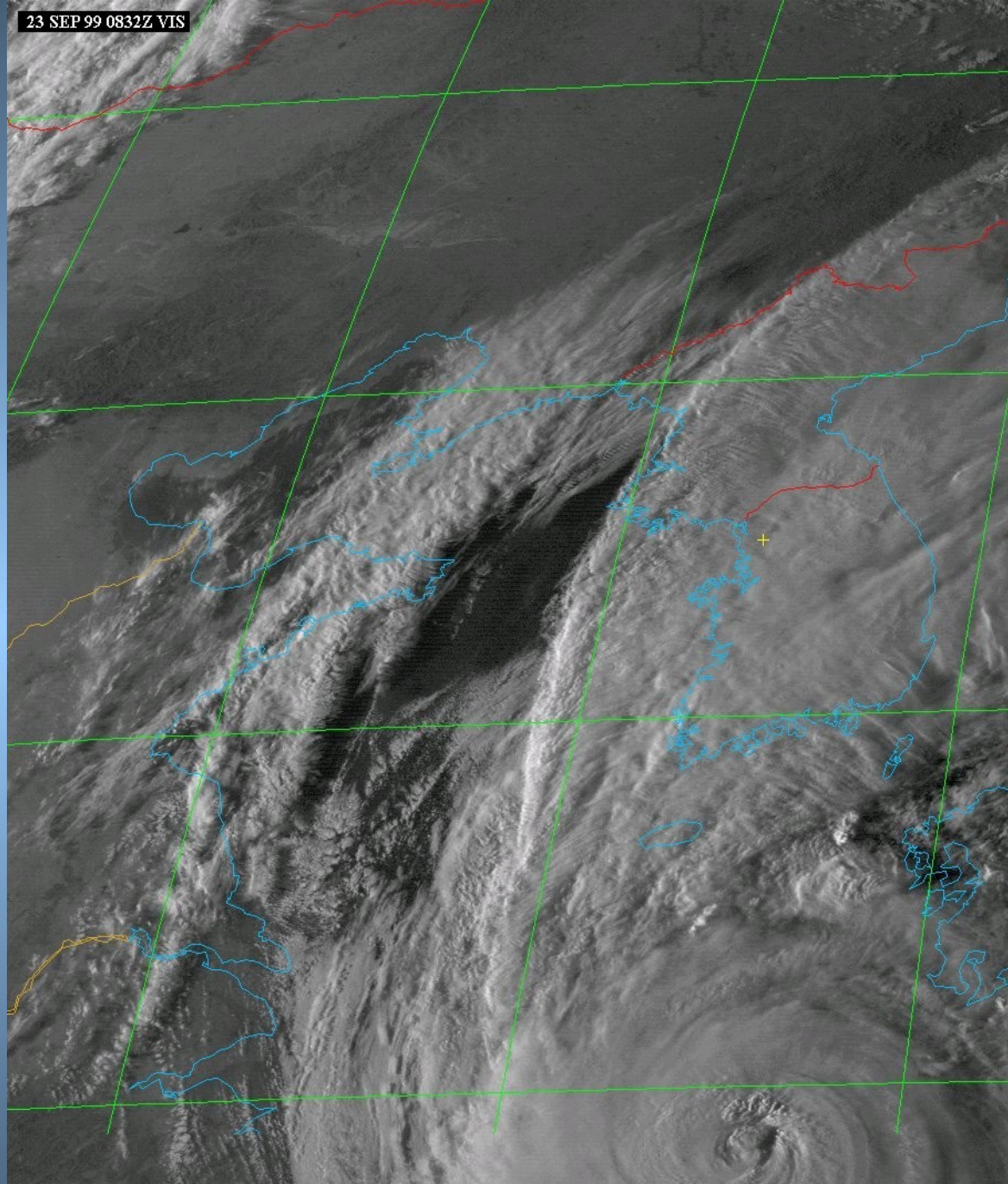
MCC/MCS

- Mesoscale Convective Complexes are quite large – as much as 1000 times larger than an air mass thunderstorm.
- Within MCC, individual tstms work together to generate a long lasting system that moves slowly (≤ 20 kts)
- Tend to form during summer where upper level winds are weak, which is often beneath an upper level ridge.
 - ✓ Cold side of a weak cold front
 - ✓ Low-level jet aids in development (moist tongue)
 - ✓ Cooling cloud tops at night aid in atmospheric destabilization
- Mesoscale Convective Systems (MCS) have similar characteristics of a MCC, but don't last as long or grow as large

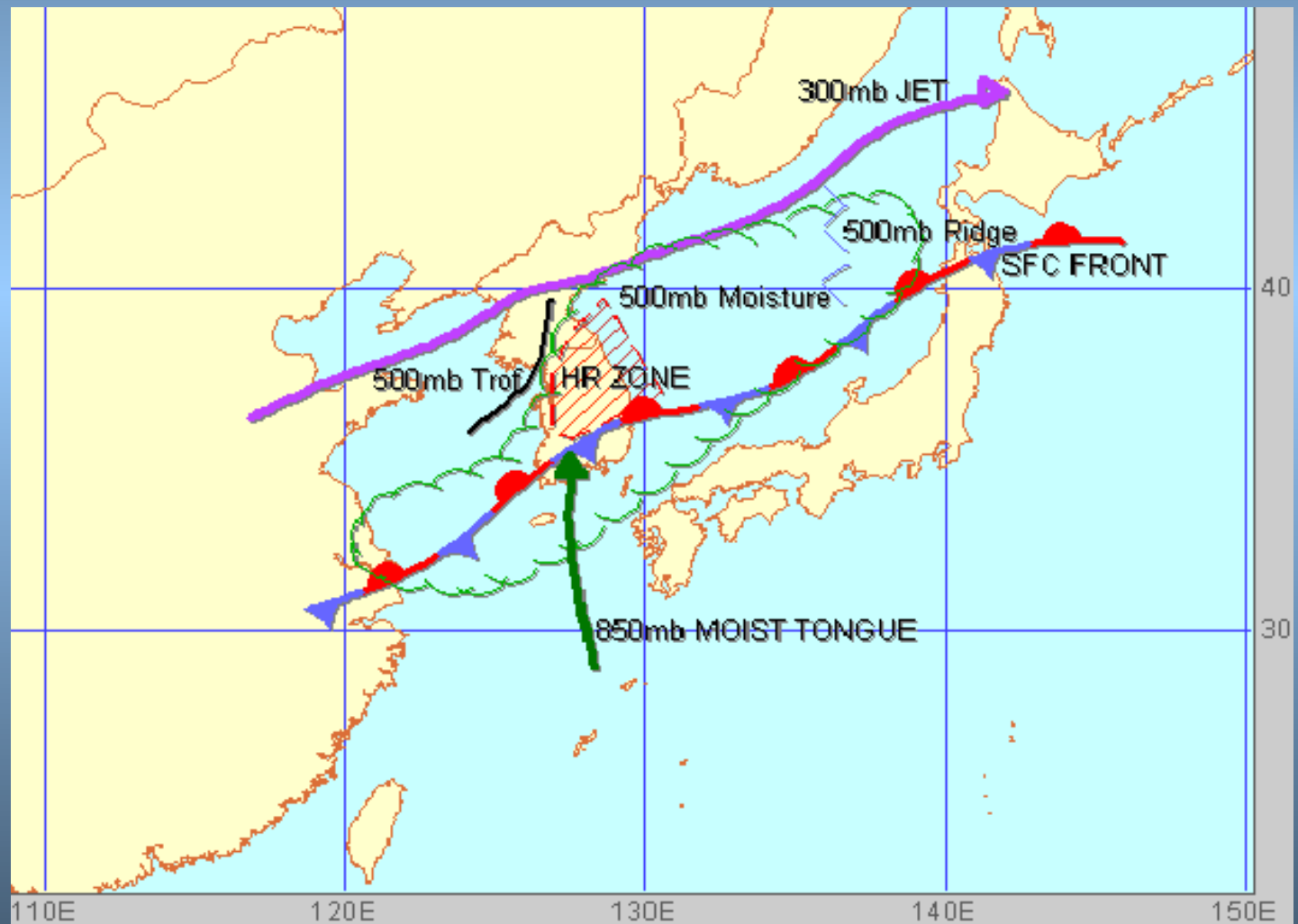
Tropical Cyclones

- Over land, max precipitation usually in right front quadrant
 - ✓ Precipitation amount directly proportional to storm intensity and movement (i.e. worst case scenario is our AOR in right front quadrant with a slow moving storm)
 - ✓ Common to see 8" to 10" rainfall accumulation along path of Cyclone

23 SEP 99 0832Z VIS



Heavy Rain Forecasting Checklist



Heavy Rain Checklist

ACTION

HR AREA LIMITS

- Draw 300mb jet axis South of Axis
 - Draw 500mb trof @ ridge Btwn trof/ridge
 - Draw 500mb moisture Within moist zone
 - Draw 850mb isodrosotherm Nrn edge of moist tongue
 - Draw Front Cold air side
- Look for common overlapping areas to identify Heavy Rain Zone

Heavy Rain Checklist

- Analyze Skew-T and answer the following:
 - ✓ Are the winds at/above 500mb SW-W?
 - ✓ Is the SSI negative?
 - ✓ Are winds at/below 850mb advecting moisture into AOR?
 - ✓ Is the mean RH between sfc and 500mb $\geq 80\%$?
- The number of yes answers determines the odds of heavy rain occurring in the HR Zone

Heavy Rain Checklist

- 4 yes answers then Forecast HR
(+SHRA)
- 3 yes answers then Forecast MDT
Showers (SHRA)
- 2 yes answers then Forecast Lgt Showers
(-SHRA)
- 1 yes answer then Forecast Vicinity
(VCSHRA)
- 0 yes answers then Forecast NO Rain

